

Unit 4 Assignment 4:

The issue of revolving debt is a bigger problem for Americans today than ever before. The credit-card companies' practice of offering low minimum monthly payment rates has encouraged Americans to spend, spend, spend - and to rack up an average credit card debt of close to \$10,000 per U.S. household (2007). An estimated 50% of cardholders carry a balance from month to month, paying only the low minimum payments each month.

Create a Java application that allows the user to enter a credit card balance, a minimum monthly payment as a % of the balance, and the annual percentage rate (apr) the credit card company uses.

You must include a method called `getMonths` that **recursively** determines the number of months it will take to completely pay off the debt if no further purchases are added to the balance. In this method, you must also determine the credit card companies' profit. The main formulas you will need are listed below:

```
Monthly payment = (balance) * (minimum payment as %/100)  
New_balance = (balance) * (1 + apr/12) - Monthly payment  
Profit = (total $ paid) - (original balance)
```

Mathematically, it is impossible to payoff your debt with these formulas. Therefore, credit card companies have added the following stipulation: your minimum monthly payment is the value obtained from the formula or \$20 whichever is more, unless your balance is less than \$20 in which case your monthly payment will be the balance.

You must execute your program 3 times, each time assume you purchased a new High Definition Television for \$1200 with a credit card. In the first execution use a minimum monthly payment of 4% with an apr of 18%. These were pretty standard rates years ago. Several years ago a man named Andrew Kahr, convinced the credit card company he worked for that they could earn a greater profit if they reduced the minimum monthly payment to 2%. For your second execution, use a minimum monthly payment of 2% with an apr of 18%. Was Andrew Kahr right? Many credit card companies now charge an apr greater than 18%, so for your third execution use a minimum monthly payment of 2% with an apr of 21%.

Your console windows for each of the executions should look like the ones on the back of this page.

```
C:\Windows\system32\cmd.exe
Enter credit card balance: 1200
Enter minimum payment (as % of balance): 4
Enter annual percentage rate: 18

# of months to pay off debt = 67
Profit for credit card company = $551.30
Press any key to continue . . . _
```

```
C:\Windows\system32\cmd.exe
Enter credit card balance: 1200
Enter minimum payment (as % of balance): 2
Enter annual percentage rate: 18

# of months to pay off debt = 130
Profit for credit card company = $1462.08
Press any key to continue . . . _
```

```
C:\Windows\system32\cmd.exe
Enter credit card balance: 1200
Enter minimum payment (as % of balance): 2
Enter annual percentage rate: 21

# of months to pay off debt = 193
Profit for credit card company = $2797.01
Press any key to continue . . . _
```